Gold King Mine Release Sampling and Analysis Plan/Quality Assurance Project Plan

To:

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From:

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CC:

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TDD#:

0001/1508-04

Date:

9/19/2015

DCN:

W0267.1E.00550

Re:

Addendum 5 to Gold King Mine Release SAP/QAPP - Mine Adit

Characterization Sampling

Comments:

This is Addendum 5 to the Gold King Mine Release SAP/QAPP. This Addendum provides the following:

- Written description of tasking for sample collection at the Gold King Mine adit.
- 2. Table 1 Testing methods designated for the surface water and sediment samples from the Gold King Mine adit based on discussions held between the EPA and La Plata County officials.
- 3. Table 2 Sample container descriptions and preservative types identified by the subcontracted laboratory, Test America, for the sampling.

Purpose and Scope

START will collect surface water and sediment/sludge samples from the Gold King Mine adit. These samples will be collected from as close as is safely accessible to the mine adit opening in order to characterize surface water and sediment sourced by the Gold King Mine.

The anticipated sample location is:

Consistence and Constitution of the Constituti	Sample ID	Sample Location Description	Latitude / Longitude	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Section Company of the Company of th	CC06	Gold King 7 Level mine adit. Sample water from flow leaving the adit.	37 53 40.50 N 107 38 18.09 W	

If the sample location becomes inaccessible, an alternate sampling location which provides similarly adequate or sufficient data as the original will be identified and sampled based upon the best judgment of the inspector/sampler, if necessary.

The data quality objective (DQO) will be estimation based as opposed to decision based. In other words, the DQO will be presence/absence without any prescribed action.

Sampling and Field QC Procedures

Sampling will include collection of surface water flowing from the adit and sediment/sludge. Sample collection procedures will follow those in ERT SOP 2013 and ERT SOP 2016. In addition, START will collect one 500 ml sample of the dry shotcrete material that will be used as part of the stabilization activities at the site.

START personnel will work with EPA and La Plata County to coordinate the sampling effort. La Plata County personnel will collect split samples to be analyzed by an analytical laboratory directed by La Plata County.

Samples will be analyzed for the parameters listed on Table 1. The methods listed on Table 1 were identified by La Plata County. The analytical laboratory anticipated for analyzing the EPA portion of the split samples, Test America, will be directed to match the methods (or equivalent) utilized by the La Plata County contracted laboratory. Sample container descriptions and preservative types identified by Test America are provided on Table 2.

Table 1 - EPA Testing Method Recommendation for Water and Soil (Sediment) Samples

	Water Column		
Parameter	Test Method	Notes	
NO2	SM4500/300.0		
NO3	SM4500/300.0		
TKN	351.2 or 4500 NorgB		
NH3	4500NHCD		
2,3,7,8-TCDD	1613		
PCBs	608/8081 + 608/8082		
Total Chromium	200.5/200.8/200.9		
Chromium-6	7196A or 3500 CRD		
VOCs	524.2		
Cyanide	4500 CNE		
Uranium	200.8		
Radium 226/228	7500 RA B/D		
Gross Alpha	7110B		
Gross Beta	7110B		
Uranium 238	908.0		
Semi-volatile	625		
	Sediment		
Parameter	Test Method	Notes	
NO2	SM4500/300.0		
NO3	SM4500/300.0		
NH3	4500NHCD		
Dioxins	1613		
PCBs	608/8081 + 608/8082		
Cyanide	4500 CNE		
VÓCs	EPA Method 24		
Uranium	ASTM C1255		
		Radon-Emanation (for radium	
Radium 226/228	Lab Recommendation	226)	
Gross Alpha	Method 9310		
Gross Beta	Method 9310		
Uranium 238	Lab Recommendation	α-Spectrometry	
Semi-volitile	8270C		
Thallium	Lab Recommendation	ICP-MS	
Thallium nitrate	Lab Recommendation	Atomic absorption spectroscopy	
Thallium soluble salts	Lab Recommendation	Atomic absorption spectroscopy	

Add Temp, pH, Conductively and DO

D, Rom 9/21/10

Table 2 - Sample Containers and Preservatives

Bottle Type Description	Preservative	Matrix	Comments
Soil jar 8 oz.	None	Solid	PCB/SVOC
Soil jar 8 oz	None	Solid	Cyanide/N/N/NH3/TKN
Soil jar 4 oz	None	Solid	Total Cr/Cr+6
Soil jar 8 oz	None	Solid	Rad226/228/AO1Ur/A01Th/U
Soil jar 2 oz - plastic VOA vial 40 ml- 5 ml DI water/stir bar VOA vial 40 ml – 5 ml MeOH	None DI Water Methanol	Solid	Vocs
Soil jar 8 oz	None	Solid	Dioxins
Soil jar 8 oz	None	Solid	Total Metals/Hg
Plastic 1 liter – Nitric Acid	Nitric acid	Water	Radiological
Amber Glass 1 liter – unpreserved	None	Water	PCB/SVOC
Amber Glass 1 liter – unpreserved	None	Water	Dioxins
Plastic 250 ml – with Nitric Acid	Nitric acid	Water	Total metals
Plastic 250 ml – with Sulfuric Acid	Sulfuric acid	Water	NH3/TKN
Plastic 250 ml – with Sodium Hydroxide	Sodium hydroxide	Water	Cyanide
Plastic 250 ml – unpreserved	None	Water	N/N/Cr+6
VOA vial 40 ml – Hydrochloric acid	Hydrochloric acid	Water	VOCs
VOA vial 40 ml – Hydrochloric acid	Hydrochloric acid	Water	Trip Blank